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CAPTAIN PAUL H. WEYRAUCH

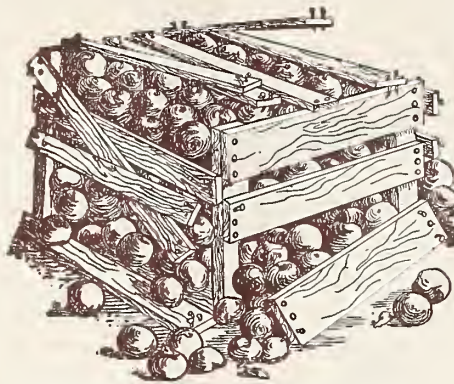
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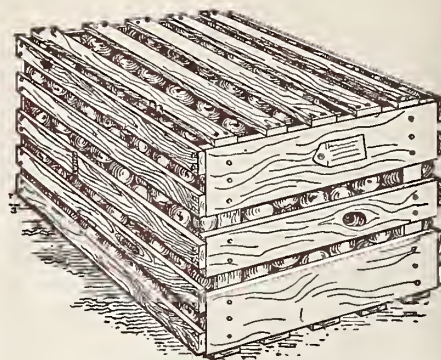
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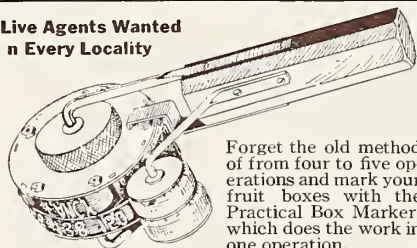
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When ordering apples specify Blue Ribbon Brand and be assured of the best the market affords. All apples packed under our personal supervision and inspection.

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

The Effect of Retail Prices on Fruit

By Ralph E. George, Department of Economics and Business, Whitman College, Walla Walla, Washington

A FACTOR of great importance in the marketing of large fruit crops is the elasticity of prices. The great majority of apple producers recognize at present that one handicap which they must overcome is the failure of retail prices to fluctuate with the prices received by the farmer. At the present time the normal difficulties in selling the crop in years of large production are greatly increased by the apparent inability of the farmer to secure larger consumption of apples in years of large crops than in years of small crops. Unless the consumers can be induced to eat more apples when a large crop is produced, the farmer must naturally suffer heavy losses. In the past this increased consumption on the part of the general public has been most difficult to secure, with the result that in such years much of the crop has frequently gone to waste or been sold at great loss. This failure, however, can largely be traced to the fact that retail prices seldom represent with any accuracy general crop conditions and prices. The farmer may be receiving extremely low prices where the retailer is charging the same or only a slightly lower price than in short years. The wholesale market may be glutted, apples may be spoiling in the terminals, farmers may be receiving unremunerative prices and still the retail price may be the same as in periods of scarcity. When consumers' prices change so little, it is natural that consumption should not be materially increased. The effect of lowering prices in increasing the consumption of such a commodity as apples can hardly be overestimated. A reduction in prices is one of the standard methods adopted by all big stores and other retail distributors to sell a surplus stock. Take, for example, the method now followed by the big clothing stores. Almost each season such stores offer for sale at presumably reduced prices the samples of their stock, thus preventing any accumulation and storing of stock, with all the loss which such a policy causes. The apple is in much the same market position from the standpoint of the consumer. It is not at present a standard article for consumption. It does not enter into the necessary budget of the average family as does sugar. Under such conditions, it becomes a luxury which will be affected very materially in its consumption by the price of the commodity. In the case of another luxury, the automobile has been increased enormously by lowering the prices and advertising the reduced prices. So if the retail price of

apples could be lowered in periods of so-called overproduction it would be possible to increase consumption to a very marked degree. Families with low incomes, unable in the past to buy apples, would then consume them and families of higher incomes would demand more apples or apples of better quality. It seems evident, then, that lowered retail prices would do much to dispose of the crop in years of overproduction.

To secure these lower retail prices when the farmer's returns are low is one of the problems which the farmer must study. Various factors are responsible for the inelasticity of retail apple prices. The conditions which are the result of our present system of marketing through a long series of middlemen undoubtedly tend to keep retail prices more or less rigid. But one of the most important factors is the lack of knowledge concerning the conditions of the apple crop, a lack of knowledge prevalent not only among the consumers but also among the retailers. By the time a number of dealers have bought and sold the apples knowledge of crop conditions has become so dissipated that the retail grower does not realize the actual conditions of the market. But if the grower is frequently only slightly informed concerning the seasonal crop, the plight of the consumer is much more dense ignorance. Seldom indeed does the consumer know that the crop is large or small, of good or poor quality. He is generally inclined to consider the retail price as a sign of general conditions, if he considers the question at all.

But if more adequate information were available to the consumer much of the present rigidity of prices should disappear. In seasons of large production he would be inclined to demand from his grower lower prices for this much-prized commodity. Furthermore, he would watch for lower prices with the expectation of buying more or better apples as they came on the market. This attitude on his part would do much toward making more elastic prices possible. One factor making the average retailer conservative in the purchase of apples and in the setting of prices is the fear that he may be unable to sell more than his accustomed amounts. When he feels hesitant to lower prices because he feels this step will not increase his trade greatly he cannot be blamed much. In many cases he does not feel able to advertise these lower prices, and consequently doubts the effect of lowered

prices in increasing consumption. He consequently prefers to secure a certain profit from his business rather than to run risks of lessening that fairly certain profit. If the consumer, however, is looking for lower prices and expecting to increase his purchases, the grower will change his opinion on the question of the price level. If the retailer himself is not required to advertise these lower prices, if the consumer is well informed on the general crop and market conditions, then the grower will feel that lowered prices will result in increased sales, and that therefore such a policy will prove profitable to him. There is, furthermore, a more pronounced advantage to be derived from the education of the consumer on such questions as that of the wholesale market. In these days of criticism of the middleman, all retailers are on the defensive with regard to this change. If they feel that the consumer knows that wholesale prices have been reduced and that consequently lower retail prices should be made, the retailers will be inclined to satisfy the informed demand of the customer for lower prices. The education of the consumer, then, on question of production and wholesale prices is of very great importance in determining retail prices. If the general body of apple consumers understand that the crop is large and that the wholesale prices are lower than usual, the grower will not hesitate long in lowering his retail prices accordingly. This lowered retail price, it must be remembered, is of great value to the farmer through its effect in stimulating demand. Consequently the widespread education of the general public as to market conditions becomes a question of considerable importance to the farmer when he is considering ways and means of disposing of a large crop. The more directly apple prices to the consumer fluctuate with wholesale prices and the more the consumer understands concerning the wholesale prices, the more elastic will be the demand and the higher prices will be in periods of large crops. The consumer will be trained to look for lowered retail prices and on a decline in these prices will buy larger quantities.

If this view be correct, among the questions which the farmer should consider is that of securing this education of the general consuming public as to market conditions and prices. At first glance this would seem to be a most difficult proposition. Yet recent changes are making such a proceeding not only possible but practicable. In

some cities wholesale brokers are already considering this problem. As an example of such developments the Produce Organization of Pittsburg has recently decided to take advantage during the coming year of newspaper reports on the markets to inform the public of fluctuations in the wholesale prices of various commodities. This organization believes as a result of such a step a larger consumption and lower retail prices can be secured with profit and satisfaction to themselves and to the community alike. Were such methods adopted in all cities, considerable information would be made available to the public. Then the Consumers' Leagues in the various cities are already doing good work along these lines. In some cities such leagues have notified their members and the public of changes in wholesale prices and have demanded from their growers correspondingly lower prices. On certain occasions when retailers de-

clined to lower prices materially, these organizations have even gone so far as to advise their members to refuse to buy such commodities until prices had been lowered, thus practically declaring a boycott, with the result that the retailers were forced to yield. In addition to these direct movements much general information is being placed before the consumer. Newspapers, as a result of the modern demand for such information, are devoting more and more space to market reports. The government is also assisting through its rapidly developing crop reports, which now reach directly or indirectly large numbers of consumers. Many other organizations and agencies which are doing somewhat similar work might be cited.

Since such a change is already taking place, the farmer can well afford to assist the movement. This assistance can be given in various ways. Close relations should be formed with the

various organizations disseminating knowledge and material of great value can be placed in their possession. It might prove desirable to furnish the newspapers with direct market information. Then the Department of Agriculture should be encouraged to widen the scope of the work along this line and to make its bulletins more available to the consumer. As a more direct step, the various apple-marketing organizations may find it profitable to adopt advertising methods which will place the facts in the hands of the consumer. In these various ways it should be possible to bring retail and farm prices more nearly into line, to make them move together, to develop an elastic demand which will consume more apples when the price is lowered and thereby prevent the extreme fluctuations in prices which now cause considerable risk and loss to all farming operations in such industries as that of apple production.

Advertising and Merchandising Northwestern Apples

By R. C. Gano, Editor Judicious Advertising, Chicago, Illinois

MERCHANDISING is a science which no group of apple growers has yet mastered and applied to the marketing of apples. It doesn't matter how many groups of apple growers have mastered the science of growing fine apples, provided only one of the groups uses merchandising science. That one group which, in addition to growing apples as fine as any others, establishes a selling system which is basically correct will inevitably lead in the markets. At the present time there is a remarkable opportunity for some one group of apple growers to take the lead in the apple market and keep it. The only qualifications they need are two. Their apples must be able to hold their own against other apples on a basis of plain quality and merit. And the growers must be willing to adopt the most efficient marketing plan that can be devised, and must have the grit to see it through.

The apple growers of the Northwest have heard such talk as the above before, have hearkened to it, and have conscientiously attempted to get together on a marketing plan. That no plan has accomplished much to date either indicates that the plans were good but were not thoroughly "sold" to the growers, or that the plans, though thoroughly believed in by the growers, were actually faulty, or that both the plans and the growers' mental attitude toward them were at fault. For there is no question that a plan which actually solves the problem and which shall enlist proper support will succeed. To doubt this is to admit that you are licked before the fight begins.

Now I don't doubt that the apple growers of the Northwest have had the example of the Sunkist orange growers cited to them time after time, when movements were on foot to form marketing organizations. But it is one thing to have a person say to you,

"Why, look what co-operation has done for the California Fruit Growers' Exchange" and quite another to have certain intimate inside facts about the California Fruit Growers' Exchange that really illuminate the apple problem presented in a way that appeals to mathematical and business sense.

As regards the point that apple production is widespread and orange production concentrated, a little reflection will show that this difference is apparent only to the producer, not to the consumer, and hence makes no difference so far as the effect of advertising is concerned. When a consumer goes to a grocery store for oranges she is confronted with a variety of unknown brands and only one known brand—Sunkist. This isn't true of every consumer, but the average housewife can name only one single brand of oranges. This has been proved by the California Fruit Growers' Exchange by house-to-house canvassing. An average test in

a certain city showed that of 772 housewives canvassed 45 per cent said they buy Sunkist oranges, and only a single person out of the 772 named another brand of oranges, during the questioning by the investigators. Orange competition may be narrowly restricted. Yet at any grocery store one will find several competing brands. Sunkist will be one of, say, four. Does the consumer know anything about the market conditions surrounding oranges? Rarely. All she knows is that in Sunkist she recognizes a familiar name with pleasant associations and advertised as California's highest quality orange.

It makes no particle of difference that oranges are grown only in two states instead of forty-five. The grocer would probably not handle more brands than he does in any event. Advertising does its real work when the consumer, at the store, or in 'phoning her grocer, is confronted with choosing among sev-



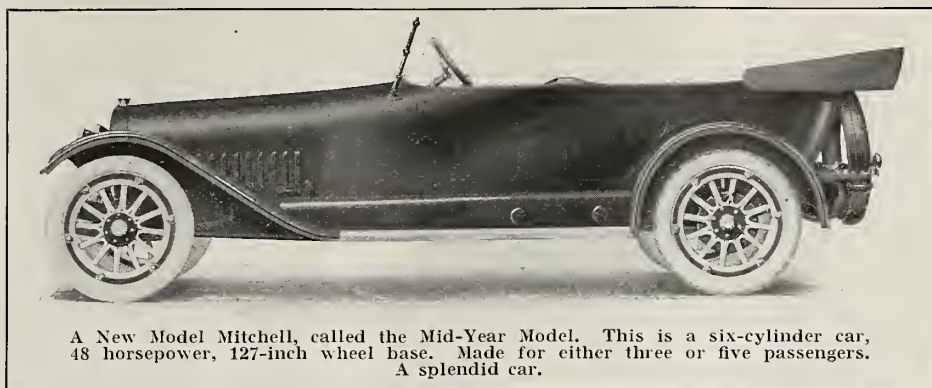
The International Motor Truck, manufactured by the International Harvester Company, in four models—one of 1,000 pounds, two of 1,500 pounds, and one of 2,000 pounds. This type is meeting with a very extensive demand and giving satisfaction to truck users.

eral brands or just saying "oranges." A few years ago nobody ever thought of saying anything but just "oranges." But today many consumers are asking over the 'phone for "Sunkist oranges," and others, when glancing over the pyramids of oranges, will point and say "those." The pile indicated will show the word "Sunkist" on the tissue paper wrappers. Many grocers will sell more Sunkist oranges than they sell of three other brands combined. If customers select at all they select Sunkist.

If a certain brand of apples, or apples packed by a certain association, were clearly identified in the public mind, exactly the same thing would happen in the grocery stores as is happening in the case of oranges. There would be one known "friendly" kind, and several unknown "stranger" kinds. That apples are grown all over the United States and oranges only in two states would be an entirely irrelevant circumstance. The known kind of apple would be selected. It is human nature and it explains the power of advertising. To me personally, who presents an exaggerated case of familiarity with the Sunkist brand, an orange tastes infinitely better if I take it out of a Sunkist wrapper. It is more than an orange. It is an old friend, and recalls to my mind pleasant pictures in colors of sunny orange groves and palm trees and missions in Southern California.

Now, to give the reader a little perspective on the Sunkist achievement, I will review very briefly the rise of the California Fruit Growers' Exchange. Twenty years ago there was no system in marketing California oranges. Buyers would buy when they saw in their limited horizon a chance to sell at a profit, and when possible they conspired against the growers to beat down prices. The growers naturally had to begin co-operating locally instead of cutting each other's prices. That was the start of the co-operative spirit, and it was seen to accomplish such excellent results that it gradually led to broader and broader organization. Facing overproduction in 1895, when production was 5,000 carloads, the California Fruit Growers' Exchange, through organizing a national selling machine and developing the market, has made possible an 800 per cent increase in crop in twenty years.

An important milestone was reached in 1907, when their system of selling through salaried agents stationed in the principal markets, appeared to have



A New Model Mitchell, called the Mid-Year Model. This is a six-cylinder car, 48 horsepower, 127-inch wheel base. Made for either three or five passengers. A splendid car.

reached its limit in sales figures, and overproduction again threatened. Newspaper advertising to announce arrivals of carloads of oranges had been used to some extent at that time, but every local association was still selling under its individual brand name. An advertising agency was consulted, and the adoption of a single brand name and national advertising were decided on, after a test campaign in one state. This campaign was to have a twofold purpose. It was to create a preference for Exchange oranges as against competitive growers, but it was also to persuade the whole nation to eat more oranges than formerly, expanding the market generally.

Since the advertising started the lowest average price per box of Exchange oranges for a season has been \$1.71 and the highest price has been \$2.75 per box. This high price was secured in a year when climatic disturbances destroyed much fruit, reducing shipments to 53 per cent of the previous year. But the market was so well understood by the Exchange that it secured record prices, and cash returns equaled 79 per cent of those of the previous year. The advertising appropriation has steadily increased from \$5,000 for the test campaign to \$375,000 for 1915-16; and this expenditure does not include premiums, which practically pay for themselves. That the advertising has accomplished the results desired is proved by the growth of the appropriation and by the aggressive plans of the Exchange growers. They expect to double their shipments in five years' time, and depend on increased advertising to make consumer demand keep pace with increasing production.

How this \$375,000 appropriation is spent should be of interest. \$230,000 was spent during the past year in ad-

vertising oranges in magazines and newspapers, and \$100,000 in advertising lemons. The remainder was spent for window display matter for retailers, for circular announcements to the wholesale and retail trade, for recipe booklets, etc.

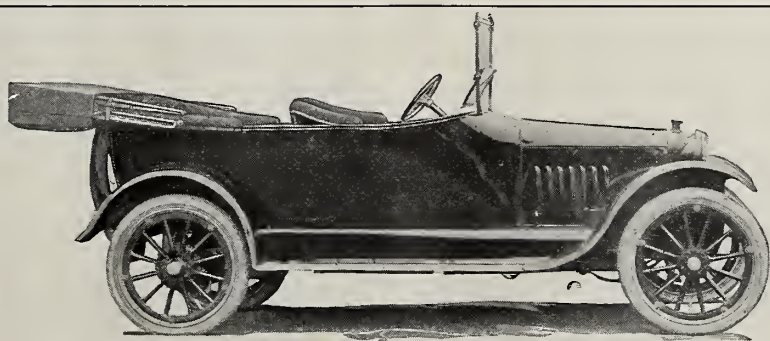
The aggregate circulation of the newspapers used was nearly 15,000,000, and as a series of seventeen advertisements was used in each paper there was a total circulation of 104,169,000. The magazines mainly used were the Saturday Evening Post, Ladies' Home Journal, Woman's World, Collier's, Mothers' Magazine, People's Home Journal, People's Popular Monthly, Ladies' World, Christian Herald, Literary Digest, Youth's Companion, Good Housekeeping, National Sunday Magazine. Their aggregate circulation was over 13,000,000 and the fifty-four advertisements used received an aggregate circulation of over fifty-two millions.

As a special inducement to make people specify Sunkist and to make dealers leave the tissue wrappers on the oranges these wrappers have been given a cash value by offering orange spoons and other plated silverware in return for them and a small amount of cash. A more recent premium offer has consisted of an orange and lemon-juice extractor of glass.

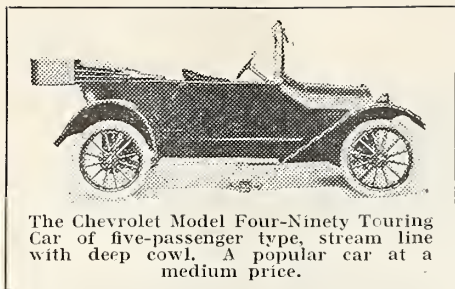
The logical appeal for the advertising to make has been most carefully analyzed, of course. Delicious taste is considered the strongest appeal for magazine advertising of oranges, but quality, healthfulness, culinary uses, price and premiums are also emphasized. For lemons the appeals rank as follows: Culinary, health, household uses, toilet uses. Much of the advertising has been in colors and all has had high artistic value.

The recipe booklets have been widely distributed in response to direct inquiries, which have of course indicated to some extent the pulling power of the advertising. These have been valuable in increasing consumption by telling people of many new and attractive ways to serve oranges. New ways of serving the fruit have also been indicated on counter cutouts and hangers for grocery stores.

That the same tactics can secure larger consumption of apples was proved by the Canadian government in the fall of 1914, when the European war had closed a number of accustomed outlets for the Canadian apple crop. Growers would have lost heavily



The Saxon-Six Touring Car, meeting with popularity and well liked by users.



The Chevrolet Model Four-Ninety Touring Car of five-passenger type, stream line with deep cowl. A popular car at a medium price.

had not the government undertaken a newspaper campaign in paid space in which the goodness of the Canadian apple was advertised to Canadians and a recipe book telling new ways to serve apples offered. A series of twelve advertisements in sixty dailies and weeklies brought in 60,000 inquiries for the recipe book, and the resulting purchases of apples by the public consumed the entire surplus.

There is no question but what apple consumption can be increased by a proper advertising campaign. To the writer's way of thinking there certainly is not. The great problem seems to be to secure concerted action, and that can only come following concert of opinion. I have not space here to describe the inter-working of the local, district and central bodies in the California Fruit Growers' Exchange, but there is nothing of importance in those functions that is dependent on the growers being geographically so close together. The same form of organization could be secured by the apple growers of the Northwest, despite the fact that they cover larger territory—and an apple association could perform all of the important services performed by the California Fruit Growers' Exchange and its branches. Those services consist, broadly, in maintaining a national sales organization, increasing demand through advertising, furnishing a daily market report to local associations, pooling and standardizing output, operating a supply company, a traffic department and attending to minor matters on a co-operative, and therefore more economical, basis. The traffic department alone, through obtaining reductions in freight rates on oranges and lemons, and in refrigeration rates, saved the Exchange growers in the period from 1904 to 1912 nearly five million dollars. Representing so many growers it is able to drive a hard bargain with the railroads. Again, estimating in advance the season's production has been done with great accuracy by the Exchange, because it is able to secure confidential reports from every section of the orange-producing territory; and this is a great advantage in that it enables growers to distribute shipments evenly over the shipping season and never allow supply to become too heavy for demand. The operating cost of the Exchange represents the selling cost of the growers and is the lowest known in the agricultural world, being less than 3 per cent on gross sales.

Now suppose that a new Northwest Apple Growers' Exchange should be

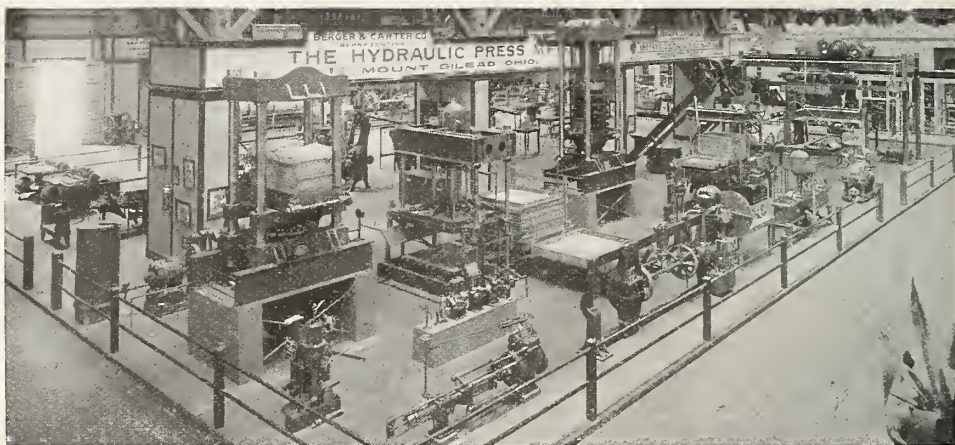
formed, or one of the old ones revived, and instead of adopting a name under which all the best-grade product should be included some such mark as the following should be adopted to identify fruit packed under the direction of the Exchange:

CHAXNGE

Such a mark as this could be featured very nicely in dark-green outline letters on a tissue-paper wrapper, the apples of the best grade could be pooled according to varieties, well cleaned and wrapped, the name of the variety appearing in red letters above the green trade-mark, while the name of the local association, if desired, could also appear in red below the trade-mark. The wrappers could be given a small value of their own by means of a premium offer. This is important, as it necessitates the retailer leaving the fruit wrapped, and only in that way can an apple be identified to the consumer. It also furnishes an extra inducement to the consumer to specify the special brand. Then the advertising slogan might be something like this: "Insist on CHAXNGE apples." It could be explained that this trade-mark indicates the best grade of fruit of the different varieties from the greatest apple-producing country in the world, the Northwest; and that all CHAXNGE apples are packed by the Eden Exchange and guaranteed to be extra quality. The various varieties packed

by the Exchange could be listed, and that these apples are cleaned in a sanitary way and wrapped so that they will stay clean and unmarred could be emphasized. The value of the wrappers would of course be explained and a recipe book offered. By featuring prominently the name of the exchange, which should be short and easy to remember, the consumer could be made to understand that the trade-mark CHAXNGE does not mean a particular variety of apple but is used on all varieties packed by a certain exchange. I think this would not be then so much a brand name as a device to identify the various products of a single packing organization.

It seems certain that such a program, with all of the minor details carefully worked out, would result in a wider consumption of apples and in a special demand for the advertised brand. Of course the little things count high in the success of any co-operative plan, and the importance of investigating the methods of such organization as the California Fruit Growers' Exchange cannot be overestimated. Success would not come in a day, but it is fortunate that it would not, for when success becomes pronounced imitation by competitors begins. Where success requires several years of preliminary work the organization which is first and gains that much of a start over its competitors is very apt to retain its lead and to increase it. Circumstances can never rob the first organization of its extra years of experience.



The above picture shows the exhibit of the Hydraulic Press Manufacturing Company, Mt. Gilcad, Ohio, at the Panama Pacific International Exposition. The exhibit was a splendid tribute to the enterprise of this well-known firm, that had the distinction of winning high honors at the Exposition. This illustration should be interesting to apple growers, particularly at the present time, for the reason this company manufactures a large number of cider and vinegar presses of all sizes, made for the use of the small individual grower or the large manufacturing plant. "By-Products" is a subject that every fruitgrower should be interested in, and one that every fruitgrower should investigate. It is becoming a

well-known fact that fruitgrowers in the East have preserved the waste for many years, and it is now admitted that fruitgrowers of the Northwest must do so to assist in making their business a profitable one. There are many grades and varieties of apples that will not justify shipping east or to other consuming points on account of the freight. They should be saved instead of being allowed to rot. It is to be hoped that this wonderful exhibit will indicate to the fruitgrowers of the Northwest how extensive the business of cider and vinegar making is carried on in the East and induce them to save the fruit they cannot ship, instead of feeding it to the hogs or allowing it to rot on the ground.

The men who sold you your fruit trees say:

"Your trees must be planted right if they are to thrive. Make the holes deep and wide and break up the subsoil. The best way to do this is by blasting. Trees set in blasted beds grow faster and larger and bear earlier. They are sure to grow when first planted and in blasted soil they will stand both dry and wet weather better."

Blast with

GIANT FARM POWDERS

STUMPING — AGRICULTURAL

—which do their work cheaper and *better* than ordinary dynamites. These improved explosives—made in two brands, Eureka Stumping Powder and Giant Stumping Powder—are prepared especially for Pacific Coast *farm and orchard* work. They pulverize the soil several feet deep and wide, and place it in the best condition to insure the rapid growth of trees and crops.

Be careful to get the genuine, made by the company which originated all "giant powders." If your dealer has only ordinary dynamites, write us and we will see that you are supplied with the *real* Giant Powders.

Get this valuable Free Book

You will find information worth many dollars to you in the Giant TREE BOOK, "Better Orchard Tillage." This book is written especially for Pacific Coast fruit growers. It tells how to have thriftier, faster-growing, earlier-bearing trees by planting in beds blasted with Giant Farm Powders.

Mail the Coupon

Mark and mail the coupon—or a postcard—and this valuable book will be sent *free*. Do it *now*—before you forget it. Other illustrated books on Stump Blasting, Boulder Blasting, Subsoil Blasting and Ditching, will also be sent on request.

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Nearly every Western nurseryman recommends blasting for tree planting. Read these statements:

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Giant explosives are of great benefit for blasting beds for orchard planting. The difference in growth between unblasted trees and trees in blasted ground is so much in favor of the latter that no adequate comparison can be made. Blasting increases absorption of soil moisture, permits deeper rooting and induces better growth and yields.

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Powder will loosen the soil, giving it a better chance to become aerated and making it more retentive of moisture.

OREGON NURSERY Co., Orenco.

Explosives are of great benefit in planting an orchard as the ground should be loose enough to allow roots to go to their natural depth easily.

BENEDICT NURSERY Co., Portland.

It is of advantage and even necessary to the success of the orchard to blast the holes.

ALBANY NURSERIES, Albany.

WASHINGTON

The yield is often three times as great on blasted soil.

ROSECROFT NURSERY, Sumner.

We have always recommended planting with explosives.

CHRISTOPHER NURSERIES, Clearbrook.

We consider the use of explosives an important factor in planting orchards. It is important to secure good drainage and the roots should be able to penetrate deeply into the subsoil.

PUYALLUP NURSERY, Puyallup.

CALIFORNIA

Blasting will allow the roots of trees to go down to the good soil.

VALLANCE NURSERY, Oakland.

We advocate the use of explosives for loosening up compact soils and hardpan in tree planting, knowing the value of such work.

FANCHER CREEK NURSERIES, Fresno.

Trees planted in blasted soil do much better.

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Apple Production and Value by Varieties

[From the Department of Commercial and Industrial Service, School of Commerce, University of Oregon, May 2, 1916]

MORE Ben Davis apples were produced last year than any other variety, the estimate being 11,100,000 barrels (of three bushels), or 14.5 per cent of the crop. Baldwins ranked second, with 8,312,000 barrels, or 10.9 per cent, and Winesap third, with 5,545,000 barrels, or 7.3 per cent of the total crop. Of the total crop produced, about 65 per cent was sold, varying by varieties from 77.7 per cent of the crop of Tompkins Kings sold to 42.7 per cent of Limbertwigs, which were sold by producers.

The variety receiving the highest average f.o.b. harvest price is the

McIntosh, being \$2.50 per barrel, seconded by the Yellow Newtown at \$2.40. The variety receiving the lowest price is the Limbertwig, \$1.41 per barrel, but closely followed by the Ben Davis at \$1.42. These estimates are United States averages, based upon reports from a large number of apple growers and specialists to the Bureau of Crop Estimates.

About 18 per cent of the crop was classed as "summer" apples, 25 per cent "fall," and 57 per cent "winter" apples.

Estimated averages for the United States for important varieties of apples follow:

Variety	Produced		Sold		F. O. B. Harvest Price
	Pct. of Crop	Barrels	Pct. of Variety	Barrels	
Ben Davis	14.5	11,100,000	59.5	6,608,000	\$1.42
Baldwin	10.9	8,312,000	72.1	5,990,000	1.98
Winesap	7.3	5,545,000	61.1	3,385,000	1.95
Jonathan	5.9	4,489,000	72.2	3,244,000	1.82
Greenings	4.7	3,595,000	75.6	2,717,000	1.97
Rome Beauty	4.6	3,524,000	63.8	2,251,000	1.70
Wealthy	4.3	3,296,000	65.6	2,163,000	1.63
Grimes Golden	3.8	2,913,000	68.4	1,993,000	1.76
Northern Spy	3.8	2,878,000	72.2	2,078,000	2.05
York Imperial	3.2	2,456,000	67.0	1,647,000	1.68
Oldenburg	2.9	2,185,000	61.3	1,339,000	1.57
Gano	2.4	1,852,000	65.7	1,217,000	1.46
Staymen Winesap	2.3	1,770,000	67.2	1,190,000	2.00
Limbertwig	2.0	1,511,000	42.7	646,000	1.41
Yellow Newtown (Pippin)	1.7	1,324,000	75.2	996,000	2.40
Fameuse (Snow)	1.3	996,000	67.1	668,000	1.84
Tompkins King	1.3	975,000	77.7	758,000	2.21
Yellow Bellflower	1.2	939,000	65.6	616,000	1.81
Golden Russet	1.2	879,000	58.4	513,000	1.66
Wagener	1.1	822,000	75.7	623,000	1.81
McIntosh	1.0	773,000	64.6	500,000	2.50
Gravenstein	0.9	669,000	77.0	516,000	2.02
Others	17.7	13,545,000	57.7	7,829,000	1.64
Total	100.0	76,350,000	64.7	49,487,000	\$1.78

The above totals do not include 320,000 barrels grown in Rhode Island, South Carolina and Nevada, where data were insufficient.

Wanted

Position as foreman or superintendent on a fruit or general farm by young married man; agricultural college graduate; experienced on both fruit and dairy farms. Strictly temperate; good references.

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Clipper for either hand, \$1

Clipper with attachment for picking cherries, \$2

The American Fruit Clipper Co.

509 BROWN BUILDING

OMAHA, NEBRASKA

Nearly 15 per cent of last year's apple production was wasted or eaten by live stock; 19 per cent was consumed on farms for human purposes, other than as cider; 10 per cent was used to make cider; and 56 per cent was sold from farm or orchard (excluding that used for cider.) These figures are estimates based upon reports from a large list of apple growers and specialists to the Bureau of Crop Estimates.

If these percentages be applied to the estimated total production of apples last year, 76,670,000 barrels, it would indicate that 43,117,000 barrels, or 129,000,000 bushels, were sold from farm or

orchard, except for cider, 22,000,000 bushels used for cider, 45,000,000 bushels consumed for human use on farms, except for cider, and 34,000,000 bushels wasted or eaten by live stock.

The estimate of total production last year of 76,670,000 barrels was obtained by applying to the census figures of production in 1909, an estimated increase since then of about 57 per cent. It is not likely, however, that the census enumeration included all the wasted portion of the crop.

The value of the portion sold is estimated at 69 cents per bushel, indicating a total of about \$89,000,000; that used for cider, 23 cents per bushel, or a total of \$5,000,000; consumed on farms, 53 cents a bushel, or a total of \$24,000,000; and that wasted or eaten by live stock, 15 cents per bushel, or a total of \$5,000,000.

Articles of Incorporation of the Fruit Growers' Agency, Inc.

We, the undersigned fruitgrowers and sales agents, realizing the advantages to be gained by co-operation among the fruitgrowers and their resident agencies in the States of Washington, Oregon, Idaho and Montana, for

The Fallacy of Paraffine base: Eastern oil manufacturers have long extolled the superior virtues of paraffine-base motor oils. But Pacific Coast motorists have proved that Zerolene, made from selected California crude, asphalt-base, gave best results. Their experience is now supported by the testimony of international experts. Lieut. Bryan stated before the Am. Soc. of Naval Engineers: "Oils made from the asphalt-base crudes have shown themselves better adapted to motor cylinders, as far as their carbon-forming proclivities are concerned, than are paraffine-base Pennsylvania oils." Zerolene received highest competitive awards, San Francisco and San Diego Expositions. Dealers everywhere and at service stations and agencies of the Standard Oil Company.

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the purpose of forming a corporation to supervise the uniform contract which the growers and growers' agents deem both desirable and necessary, and for generally promoting the fruit industry in the Pacific Northwest, hereby make and subscribe, and do hereby adopt the following articles of incorporation, to-wit:

ARTICLE I.—Name

The name of this corporation under which it shall do business shall be "The Fruit Growers' Agency, Incorporated."

ARTICLE II.—Purposes

This exchange is organized for the purposes of supervising the performance of a uniform contract which exists between the growers and their respective sales agencies, for the selling of the fruit products of the Pacific Northwest; to provide the means and facilities for carrying out the provisions contained in this contract as hereinafter set forth; to establish and maintain an "exchange" for the promotion of business and social relations among its members, and especially the advancement of the mutual interests of the fruitgrowers and fruit shippers of the Pacific Northwest by all proper and legitimate methods; to collect and disseminate information; to secure improvements in transportation and storage services and conditions; to encourage competition by honorable methods only; to adjust by fair and equitable means grievances and differences; to correct trade evils and abuses; to prohibit all customs not in accordance with sound business principles; to secure the unification of contracts and accounting methods; to secure uniform methods in the physical handling, grading and packing of fruit from tree to car; to provide the necessary facilities for the extension and development of domestic and Canadian markets; to provide the necessary facilities for the promotion and conduct of export shipments and sales and work through joint agents and consignees for this purpose; to underwrite steamship charters and develop new fruit trade routes; to co-operate with federal agencies in such lines of work as they may undertake in behalf of the fruit industry; and to form and carry out plans for the mutual protection and benefit of its members in the harvesting, marketing and distribution of the Pacific Northwest fruit and produce crops.

To enable this corporation to carry out the purposes for which it is organized, it shall have the power:

1. To do all things necessary, proper and legal to carry out the purposes of its organization as above stated.
2. To buy, rent, lease, acquire and own such property, real or personal, as may be necessary for carrying on the business of the corporation and to sell, lease, mortgage, release and handle the same.
3. To aid in any manner any corporation or association organized for like purposes as this one, and to do any acts and things necessary for the success thereof and to assist it in carrying out the purpose of its organization. To co-operate with and become a member of any State, Interstate or National organization organized for the same general purposes as this.
4. To borrow money and secure the payment of the same by bond, mortgage, note, hypothecation or pledge of any property belonging to the corporation and to issue such promissory notes, bonds, debentures or other evidences of indebtedness as may be deemed necessary by the Board of Trustees, to meet and discharge its obligations, to advance and promote the lawful purpose of its creation.
5. To make and enter into contracts with its members, other persons, associations or corporations, and to do any and all other acts and things necessary to carry out the purposes of its organization and which may be authorized by law, and to assist its members in every way practicable in the conduct of their business.
6. To sue and be sued.

ARTICLE III.—Membership

This organization shall have no capital stock nor shall any shares therein be issued.

The corporation shall prescribe the qualification for any membership and the terms, conditions and character thereof, and fix the rights and privileges of the member. It may have a voting and a non-voting membership and fix the membership fee accordingly. The corporation shall issue membership certificates, which shall be assignable or transferable only under such rules and regulations as

Correcting Unsanitary Orchard Soils



Drawn from actual photo.—Note marked difference in growth between tree planted in blasted hole and tree planted in spade-dug hole.

Unsanitary soil conditions are serious handicaps to the growth of orchard trees.

They are the direct cause of certain root diseases.

They limit the amount of plant food that is available, and cause mal-nutrition.

Root diseases and lack of food stunt the growth of trees and reduce the amount of fruit produced.

Slow growth, mishapen branches, small leaves and pale color of leaves are some of the signs of bad soil sanitation. When these are noticed, the faulty conditions should be corrected at once.

The trouble may be caused by shallow soil, hardpan, tight clay, or bad drainage. Rational blasting gets directly at the seat of trouble and relieves some of the most pronounced cases by shattering the hardpan and deepening the soil, the hard soil through which the stagnant surface

or by opening seepage channels into which water can sink into the subsoil.

Relief from excessive surface water, which causes bad soil sanitation, is obtained by blasting ditches. This is a quick and economical method.

Orchard blasting is fully described in "Developing Logged-Off Lands." Land owners and orchardists can obtain a copy of this valuable book by addressing

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Why it is adapted to *Your* needs

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- 3 Any style boiler may be used having a pressure of from 50 to 100 pounds.
- 4 The Hurst Evaporator is shipped **knocked-down**—saving you freight. It can be set up very easily from the plans we furnish with each shipment.
- 5 The Hurst Evaporator is built like a cabinet—screws only are used. Each unit requires floor space of 34" by 100". It stands 86" high.
- 6 Glass doors on both ends permit you to see the condition of the fruit at any time.
- 7 Italian Prunes can be evaporated in 14 hours—Apples in 2 hours—Loganberries in 12 hours.
- 8 Made in one size **only**.
- 9 Made on order only.
- 10 Each evaporator is thoroughly tested before shipment is made.

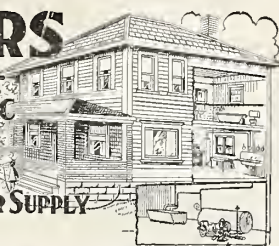
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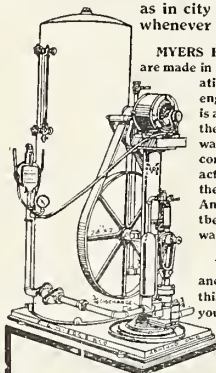
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may be prescribed by the by-laws of the corporation.

No service shall be performed by this corporation for profit, nor shall any goods, wares or merchandise be handled or sold for profit. For all services rendered to its members they shall be charged therefor only such amounts as shall be necessary to pay the expenses of such service. This to include all necessary expenses incurred in handling the affairs of the corporation, including interest, fixed charges and salaries and such amounts as may be set aside to establish a surplus fund, if the members of the corporation shall deem it advisable to establish such a fund.

ARTICLE IV.—Place of Business

The principal place of business of this corporation and its home office shall be in the City of Spokane, County of Spokane, State of Washington.

ARTICLE V.—Terms of Existence

This corporation shall exist for a term of fifty (50) years.

ARTICLE VI.—Incorporation

The officers of the corporation shall be a president, a vice-president, a treasurer, an executive secretary and such other officers and agents as the Board of Trustees shall from time to time authorize. All notes, mortgages, bonds and other evidence of indebtedness shall be drawn in the name of the corporation, signed by the treasurer and countersigned by the president. The executive secretary, with the approval of the president, may bind the credit of the corporation in any sum not exceeding \$500.00. In order to bind the credit of the corporation for any sum in excess of \$500.00, a written resolution authorized by the Board of Trustees shall be necessary.

ARTICLE VII.

The Board of Trustees shall be composed of not less than eleven voting members, five of whom shall be exclusive growers, five of whom shall be exclusive sales agents. The eleventh member of said board shall be elected from the active membership and may be either a grower or a sales agent.

Whenever it appears that the active voting members is a partnership, association or corporation, it shall, if a partnership, select one of its members, and if an association or a corporation, an officer, and shall certify his name, and upon such certification, the said members or officer shall be deemed eligible for election to membership on the Board of Trustees.

Officers of the Fruit Growers' Agency, Incorporated

Paul H. Weyrauch.....President
J. B. Adams.....Vice-President
P. R. Parks.....Temporary Secretary

TRUSTEES

J. B. Adams, Wenatchee, Washington; Conrad Rose, Wenatchee, Washington; E. W. Ross, North Yakima, Washington; C. H. Swigart, North Yakima, Washington; P. R. Parks, Spokane, Washington; Wilmer Sieg, Hood River, Oregon; W. F. Gwin, Seattle, Washington; Paul H. Weyrauch, Walla Walla, Washington; D. L. Ingard, Payette, Idaho; W. M. Sackett, Hamilton, Montana; B. W. Johnson, Corvallis, Oregon.

COMMITTEES

Advisory Committee—Executive Secretary, chairman. Fred Eberle, North Yakima, Washington; J. F. Sugrue, Cashmere, Washington; W. O. Dow, Wenatchee, Washington; P. S. Davidson, Hood River, Oregon.

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The manufacturers of this Dehydrator have recently patented new and improved automatic labor-saving preparatory machinery which will further reduce the present low cost for the production of this product.

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Committee on Activities and Budget—Paul H. Weyrauch, Walla Walla, Washington, chairman. W. M. Sackett, Hamilton, Montana; E. W. Ross, North Yakima, Washington; W. F. Gwin, Northwestern Fruit Exchange, Seattle, Washington; D. L. Ingard, Payette, Idaho.

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One cent invested in a postal card request will bring you this catalog giving description and prices on

Fruit Ladders Picking Bags Picking Pails
Nail Strippers Lid Presses

AND MANY OTHER ORCHARD SUPPLIES

The combination of quality and price which we offer you is an interesting feature of this line.

Prepare now if only to the extent of sending for this catalog of Orchard and Packing House Supplies.

THE HARDIE MFG. CO.

49 N. Front Street

PORTLAND, OREGON

Fruit Industry Paraphrased

Monthly Apple Consumption.—The United States government has given out the following estimates in reference to the monthly consumption of apples in barrels: June, 1,500,000; July, 6,400,000; August, 8,800,000; September, 15,500,000; October, 26,700,000. Figuring on a percentage basis: June, 3%; July, 11%; August, 15%; September, 25%; October, 45%. It is to be regretted that these figures, as far as we know, do not include the consumption for the months from November to May, inclusive. However, it seems wise to call attention to the fact that fruitgrowers, dealers and operators should look out that the month of June doesn't catch them with much on cold storage, as it is certainly bogy month of the year. It is also true that May is somewhat of a bogy month also, as at that time strawberries and fresh vegetables are coming on the market, reducing the normal consumption of fruit.

President Barry of the Western and New York Horticultural Society states in an article recently published in a book issued by the society, that the official count in New York State shows 24,988,707 fruit trees of all kinds, of which 14,076,718 are apple trees, which produced 25,409,324 bushels. President Barry quotes a New York Central official by saying: "More apples were shipped from five centers in New York State fruit belt than were produced by Oregon and Washington combined."

Estimates.—Oregon, Washington, Idaho and Montana shipped about 10,000 cars of apples in 1915. There were many who figured this year would be one of immense production. Estimates were made, but apparently all estimates were based on the fact that all orchards of all ages in all districts would produce a heavy crop. Before the frosts there were many who believed the Northwest would ship 15,000 cars of apples this season. Just at the present time the amount of damage cannot be definitely determined in some sections, and therefore no definite or very valuable estimate can be given. About the only thing to be said is that the crop will be much smaller than was originally estimated by almost everyone early this year.

The cold rains this season, occurring in some districts during the blossoming time, interfered with pollinization, reducing the size of the crop very materially. The cherry crop, which was in full bloom in many districts during the rainy period, suffered quite a severe loss. The Dalles, Oregon, reports a light cherry crop. Growers in many districts believe the cherry crop of 1916 was largely reduced by the dryness existing during the year 1915.

The Sam Watson is the name of a new cantaloupe being introduced and obtained after many years of experiment by Mr. W. S. Broadeus, a California fruitman.

More Ben Davis apples are grown in the United States than any other variety. Mr. Louis Erb, a commission man of many years in Chicago, and now growing apples in the Ozarks, is the best friend that old Ben ever had. Laying all joking aside, the Ben Davis is considered by many to be a pretty good apple grown in some districts, although the Northwest doesn't stack up on it very heavily. We have eaten Ben Davis in March and April when they did not taste bad, and while we are not fastidious, we do not hesitate to say that any time we can get a Spitzenberg, Winesap, Newtown, Jonathan, Delicious, Grimes Golden, Gravenstein and a few other varieties that the other fellow can have the Ben Davis.

Profesor T. O. Morrison, in charge of the Division of Horticulture, Olympia, Washington, is warning the growers that infected fruit cannot be shipped this year, except to by-product factories, for which a special permit must be obtained. That's business. The less infected fruit growers put on the market the more money fruitgrowers will make.

During the low temperature prevailing in April smudge pots were used extensively in Southern Oregon, it being quite evident that the growers who smudged properly profited largely by preventing the fruit from being affected by frost. The growers who did not smudge suffered more or less.

BETTER FRUIT

HOOD RIVER, OREGON

Official Organ of The Northwest Fruit Growers' Association
A Monthly Illustrated Magazine Published in the
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Crop Statistics for 1916.—1916 was a period of wonderful bloom. A fruit-grower went out through his orchard, viewed the bloom, swelled with pride and imagination, came to town and told the editor of his local newspaper what an immense crop he was going to have. The editor of "Better Fruit" has always been conservative in statistics, and for many years in the past has advocated the advisability of giving no estimates during the blooming period, time and time again,—this year in particular. The value of this advice is evident. Never before in the history of the Northwest, in some sections, has the bloom been heavier or the shedding greater. Frost damages have occurred in many sections, some serious, some not. The June drop has not taken place. Already crop estimates given out from some districts have been recalled on account of frost damage. In other sections the shedding has greatly reduced estimates. The June drop is still ahead. The reports on estimates from other sections of the United States, outside of the Northwest, are not much in evidence further than to say everything is favorable. Therefore "Better Fruit," in accordance with its time-honored custom of giving no estimates during the blooming time, will refrain from commenting on the size of the crop at the present and until such time as the most serious dangers of loss, which occur in the early part of the season, are past, which will be some time after the June drop has taken place. Even then estimates are a problematical matter to some extent, as disease or pests may break out in some districts, dry condition prevail in some others, and other factors arise which may materially reduce the size of the crop, and, on the other hand, favorable conditions may continue increasing the size of the July estimate. "Without a bloom it is a

cinch there will be no crop, with a heavy bloom you may have a heavy crop or a light crop." So don't figure your crop during the blooming period, and, above all, don't give out any estimates, because they do not have sufficient value and may be misleading.

Retail Prices of Apples.—Six years ago the editor of "Better Fruit," accompanied the Experiment Station staff of Pullman, Washington, by invitation, on a tour through the Yakima Valley. In each address at the various places visited, and in numerous addresses given before horticultural societies in other sections of the Northwest in that year and following years, the editor of "Better Fruit" vigorously called the attention of the apple growers to the serious menace of exorbitant retail prices on apples in connection with preventing consumption, showing conclusively that exorbitant retail prices not only prevented consumption, but by so doing lessened the actual price obtained by the fruitgrower. At that time, and for some time afterward, growers failed to realize the seriousness of the situation. It is only recently they have apparently awakened to the importance of this advice. After six years the subject is being taken up by one of the professors, who has given the matter of marketing fruits considerable study, has written an article, which appears elsewhere in this edition. It is well worth reading. Again, the editor of "Better Fruit" says to apple growers of the Northwest: "You must wake up and endeavor to solve the problem. You must find some way of reducing the exorbitant retail prices on apples if you want to get better net returns for your crop."

Advertising and Merchandising Fruit. The subject of advertising, more or less naturally, is one that is very little understood by fruitgrowers. The citrus fruitgrowers understand the value of advertising, so do the raisin growers. Even the loganberry growers, and, by the way, the loganberries are only a drop in the bucket in dollars and cents compared with the apples of the Northwest, have discovered that proper advertising has created a demand, not only for loganberry juice but for loganberry pies, so that the crop has been entirely consumed. Briefly, the loganberry growers unable to move the crop which they had placed in the hands of dealers, by a small fund of \$1,000 only, spent through the advice of an advertising agency, succeeded in cleaning out last year's crop. There is no question about the advantage of advertising. There is no denying the fact that money can be wasted in advertising, but there is one important feature that every fruitgrower should study and understand, that is, advertising without merchandising cannot be expected to accomplish what advertising will accomplish if accompanied by proper merchandising. For instance, it would be foolish to spend a lot of money in Chicago publications and not see that Northwest apples were properly placed

on the market at reasonable prices in attractive form; by that is meant good varieties, good grades, attractive labels and first-class packs. Even with this, if the dealers are not properly supplied and retailers not properly looked after, the maximum benefit cannot be expected to be obtained in accordance with the cost of the advertising.

Automobile Trailers.—An automobile trailer, which can be quickly attached to any automobile, is now being manufactured by several companies, at a very moderate cost. These trailers are being made in different sizes. The editor saw one trailer, having two wheels, which followed exactly in the tracks of the rear wheels of the automobile, which will hold forty crates of strawberries, the price being \$52.50, laid down. Some trailers have four wheels. They are made in various sizes and at various prices. It is our belief that the fruitgrower who has an automobile will find one of these trailers very satisfactory, efficient and economical in hauling his fruit to market. Therefore it seems advisable to suggest that every fruitgrower should inquire about them from his implement dealer. We are sorry to say we do not know what the proportion of tonnage is that can be hauled in proportion to the horsepower of the automobile. However, all this can be obtained from the dealer, who undoubtedly is posted, and if not, can become so, for anyone wanting the information.

The Apple Crop of the Northwest Will Be Clean This Year.—In 1915 the apple growers of the Northwest suffered more from codling moth, fungus and various other pests than for several years in the past. It gives the editor of "Better Fruit" great satisfaction to say this year that growers of the Northwest are spraying more thoroughly, doing their work systematically, sparing no expense and no time in an endeavor to produce a clean crop of fruit. This is indicated by the fact that in some sections the purchase of spray materials is doubled, even trebled, over previous years. It is also further indicated by the fact that in some districts nearly half as many spray outfits were purchased this year as were purchased during the last thirteen years. So the trade can look for a clean crop and high-grade fruit from the Northwest, barring some unforeseen trouble. It may be said in addition to this, that never has the foliage or the quality of fruit looked finer or as free from pests as it does at the time of going to press with the June edition, June 1st, 1916.

Marketing the Crop.—The apple growers of the Northwest, as we all know, have been through a series of experiments. Most of the experiments so far failing to realize a price for apples the grower felt he should receive. Under such circumstances it can be easily understood that the fruitgrower hesitates over any new suggestion or plan, and many will tell you

"they are from Missouri and have to be shown." There is no way of obliterating the old expression which remains true—"A burnt child dreads the fire." Apparently it is evident that the fruit-grower is inclined to take nothing new for granted, but must be absolutely convinced in his own mind before he is willing to enter into anything new or agree to pay any additional cost in connection with marketing. It also seems evident that the fruitgrower must be not only convinced of a few of the principal features in connection with any new program, but he must be absolutely convinced that each and every one of them is for his own interest.

Automobiles.—The fruitgrowers are most extensive purchasers of automobiles, per capita, of any kind of farmers. In the past automobiles have been very high in price, until during the last two or three years, when some automobiles were put out at low prices. A number of the higher-grade machines, with complete equipment are now being manufactured at a very reasonable figure. By that is meant at a price ranging from \$700 to \$1,200. Such machines are complete in equipment, with self-starters, electric lights and practically all of the modern attachments. They are meeting with popular favor. A few illustrations of some of these, with complete equipment at moderate prices, from time to time, will appear in "Better Fruit." It is hoped they will be interesting to the fruitgrowers who are thinking about buying an automobile, as possibly some of the pictures may illustrate an automobile which the fruitgrowers have not seen advertised in any of the publications which they are taking.

Officers and By-Laws of Fruit Growers' Agency, Inc.—In order that the fruitgrowers of the Northwest may be fully informed in connection with the Fruit Growers' Agency, Inc., although a number of articles about this agency have appeared in previous issues of "Better Fruit," showing their scope, the by-laws and a list of officers are published elsewhere in this edition. Anyone wishing information can write any of the officers or members and obtain information. However, it seems wise to suggest that correspondence primarily should be directed to the president, Captain Paul H. Weyrauch, at the present acting secretary, address, Walla Walla, Washington. In order that fruitgrowers may form a personal impression of the splendid character of the head of this institution Captain Paul H. Weyrauch's picture is produced on the outside cover of this edition.

Fire Blight.—Fire blight has not been reported to any extent from any of the districts of the Northwest up to the first of June, but that does not mean it may not break out in the near future. Therefore, again it seems wise to suggest to the fruitgrowers to be on the lookout, following the recommendations given by those who have made a study

of the subject. If you are not posted consult your Horticultural Inspector or Experiment Station, or someone else who knows.

Mr. E. E. Samson of North Yakima, Washington, after an extended trip throughout the East, states that on account of the large crops during the last few years that there is an evident tendency on the part of the dealer and operator to buy less for cold-storage purposes. It is evident it will be very difficult in advance to determine the amount that will go on cold storage during 1916. It is Mr. Samson's opinion that the amount of hail-marked apples, wormy apples and apples affected with various other defects, which were shipped last year, were a serious menace to the industry, and in order to recover from the bad impression created it will be absolutely necessary for the pack to be very high grade this year.

Mr. J. M. Perry of North Yakima believes the excessive amount of apples held on cold storage, which were forced on the market at low prices in order to clean up the 1915 crop, will be a factor in creating an apple-consuming habit, resulting in increased demand during the year 1916.

The apple holdings in storage May 1, 1916, were 92 per cent greater than May 1, 1915. One or two conclusions is evident. Either the holders wanted too much money and held too many or they held too long, expecting higher prices at the end of the season.

Mr. J. A. Westerlund of Southern Oregon is a strong advocate for the Fruit Growers' Agency, Incorporated, and has been doing some very active campaign work in urging the fruit-growers of Southern Oregon to affiliate.

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How to Protect Rose Bushes from Rose Aphis

[U. S. Department of Agriculture, Office of Information]

WHEN new growth starts on the rose bushes in the spring, and throughout the summer and fall, the young growth and the flower buds and stems of rose bushes are often covered with a small green or pinkish plant-louse, known as the rose aphis, which sucks the sap from the tender portion of the plant and causes an unhealthy curled condition of the foliage and disappointment in the number and quality of the flowers produced. The rose aphis passes the winter in the egg stage on the stems and dormant buds of the rose bushes, according to A. D. Hopkins, forest entomologist, United States Department of Agriculture. The insects hatching from these eggs reach maturity in about 15 or 20 days, all being wingless. They are pear-shaped and either bright green or pinkish in color. At this stage they begin to produce living young, each individual in course of about 20 days producing 50 to 100 young, which on maturity are either winged or wingless, and in turn either green or pinkish. Thus the tender growth soon becomes crowded with various sizes, colors and shapes of aphides, and, to insure their progeny with an adequate food supply, the wingless mothers migrate to less crowded growth and the winged ones fly to other rose bushes, each starting a colony for herself. In favorable weather conditions, especially in a humid atmosphere, many generations may thus follow one another, covering every bit of green vegetation on the bush with their bodies, their cast skins, honeydew, and the resulting sooty fungus. It can easily be seen that, had every aphis produced in the course of a season lived its full life, the progeny

of a single over-wintering egg would run into millions. The presence of ants on the rose bushes is an indication that the aphis is present, because the ants collect the honeydew from the aphides and, to a certain extent, protect the aphides from their insect enemies.

As above indicated, the rose aphis thrives best in cloudy, humid, warm atmosphere, hence with the appearance of a hot and dry spell they often disappear as suddenly as they appeared. Aside from a variety of causes, like driving rains, winds, etc., which decimate its numbers considerably, the rose aphis is attacked by other insects, which either devour them or develop from eggs deposited in their bodies.

Ladybirds, lacewing flies, and the larvae of two-winged flies called syrphus flies are among the former, and a number of species of tiny wasp-like insects represent the internal parasites. Sometimes these natural agencies of control are sufficient to keep the aphides so reduced in numbers that they do little or no harm. Notwithstanding the effectiveness of natural checks, however, their intermittent character unfortunately renders their help often too late to save the flower crop. It is always advisable, therefore, to watch rose bushes for aphides and to apply remedies as soon as they are discovered.

Fortunately the rose aphis readily succumbs to artificial methods of control and, with the different styles of spray pumps on the market, there is no excuse for allowing roses to suffer from these insects. The simplest, most commonly used, and often quite effective remedy, is to turn a fine but forceful stream of water on them by means of the garden hose. Applied often enough this gives satisfactory results. Solutions of fish-oil or cheaper grades of soap are often useful as a prompt remedy. The soap is used at the rate of one pound to four gallons of water. To make the solution, shave the soap into the water and dissolve by heating, adding enough water afterward to make up for evaporation. The best remedy for the rose aphis is 40 per cent nicotine sulphate (a liquid which can be purchased in most seed stores), diluted at the rate on 1 part to 1,000 to 2,000 parts of water, with fish-oil soap or laundry soap added at the rate of 1 pound to 50 gallons of the spray mixture. The simplest way to prepare the spray in small quantities and secure satisfactory proportions of the ingredients is to put 1 teaspoonful of the nicotine sulphate in from 1 to 2 gallons of water and then add one-half ounce of laundry soap. One spraying is usually 100 per cent effective, but if the first application has not been thoroughly made, a second one may be necessary.

In order to prevent the possible development of mildew as a result of



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frequent spraying it is advisable to make the application in the early morning so that the spray will dry off the plants promptly. The spraying device to use depends on the amount of spraying necessary. A cheap atomizer, such as can be bought in any seed store, is quite satisfactory for small plants and gardens. Good knapsack and barrel pumps are available for commercial growers.

Tree Growth in Blasted Ground

By J. R. Mattern, Julian, Pennsylvania

One in a judicious frame of mind may often wonder, after ten years or more of active propaganda by the Powder Companies for the use of explosives in preparing the ground for trees, just what the average results of such blasting may be. It is certain that literally thousands of planters of fruit trees have made use of the method. In some of the famous fruit sections of America blasting the ground has become the universal, standard practice.

An examination of a good many orchards where the trees are growing in land prepared for them by blasting shows first of all that the trees are anchored more securely. There is far less of that leaning away from the wind that characterizes too many orchards. It not only is unsightly—it often means the breaking down of the trees under their usual loads of fruit. I do not know whether this can be attributed to a deeper root system or to more extensive root systems. Probably it is a combination of both.

I have not observed that in young trees the blasting of the ground results in much thicker growth of trunk, though only a few trees have been measured within my observation to check up this point. But in older trees that are growing in the ground containing hardpan, there is a decided increase in the thickness of the trunks of the trees where the ground has been blasted. Probably the young trees do not yet have vital need of the underlying strata of soil. Probably the trees begin to suffer from the lack of food and lack of water that stunts them and keeps them back only after they have thoroughly worked over the top soil within reach of the roots. In one instance apple trees over hardpan were lifted by the forces of growth till the roots were exposed above the ground, simply because the hard ground beneath offered no opportunity for root penetration.

There probably are a good any soils that will not be benefited much by blasting, particularly if the blasting is not immediately followed in the right way with heavy-rooted cover crops. But these soils do not often occur in the fruit-growing sections, for there are problems in moisture storage and in the making available of insoluble plant foods which the blasting helps to solve, and these problems are present in clay and loam, and highland and lowland alike.

As for length and thickness and number of the twig growth of trees, I

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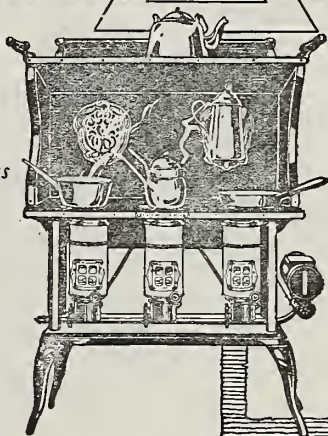


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For this work there is nothing that will equal

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in keeping the ground in perfect condition at a small cost.



The price is in reach of the small grower and can be bought from your local dealer or from

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personally can bear witness to the fact that in blasted ground there is every reason to expect superiority. In only a half dozen instances out of a hundred that I have seen have the trees failed to make huskier, bigger tops in blasted ground. It is the rule rather than the exception to see whole blocks of one thousand or ten thousand trees so planted show an average growth of eighteen or twenty or twenty-four inches in a season, and alongside of this I reflect that on similar soils I have seen many orchards planted with inferior tillage that would average only seven or eight or ten inches in twig growth in a season. It is only fair to say that I have seen a few orchards in light sandy soil, and in very heavy soil, where blasting apparently did no good, or even did harm. The sandy soil seemed to loose in moisture-holding capacity by the blasting. The clay seemed to hold water around the trees too long.

There may be some question about the value of blasting an open, fertile soil, but there can be no question at all when there is the least indication of plow sole, or hardpan, or a layer of clay. Blasting is intensive tillage. If you believe in tillage you automatically believe in the use of explosives to secure it, because there is no other method so effective, and none that you can use to get the same results, or to get results of a similar nature for so little money.

Care of Winter-Injured Trees

"Your trees showing abnormal fruit drop, lack of foliage and growth should be given the best of care with good soil treatment and by no means torn out," say the horticultural authorities in reply to the flood of inquiries reaching them from men who are seriously concerned over the unfavorable condition of their orchard trees in many parts of the state.

The most serious tree injury appears in young trees from one to eight years of age. These trees also show the characteristic abnormal fruit drop. Of the older trees the difficulty seems to be confined chiefly to the altogether too heavy drop of fruit. "There are thousands of trees that show a condition ranging from a sickly condition to that of seemingly dead," says Professor C. I. Lewis, head of the department. "There are hundreds of thousands of trees that show lack of foliage and proper growth. Indications now are that a large percentage of the pear and prune trees shed their fruit so badly that there cannot be expected a commercial crop. In some cases the drop is so severe that no crop at all is expected. The cherry drop is abnormal in some sections of the state. The apple drop will come later, but it is not yet known whether it will be abnormally severe. Some think this abnormal drop is due to abnormal weather during the blooming period. Experts of the Experiment Station, however, think that the late bad weather had nothing to do with it. The drop was already well under way before the cold

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spell set in. The general weather conditions during the blooming period have been one of the best in the last ten years. There has been some rain during the blooming period, but not prolonged. The frost has been absent entirely or very light. There has been considerable sunshine, the usual amount of warm weather with an even temperature. The unusually favorable conditions are shown by reports of Oregon bee men, who say that the bees have accumulated an unusually large supply of honey.

"The college authorities attribute the drop to weather conditions of January and February. Last winter was one of the hardest on fruit trees in the last twenty years. This weather damaged the trees by loosening and breaking up the cambium layers, sometimes splitting the bark and wood. Attention was called to this condition by the specialists during the latter part of February. It was said at that time that the injury would become very noticeable along later in the season. This condition has now been reached. It was not merely the severe cold as much as the sudden change in temperature that affected the trees unfavorably. On one occasion within three hours the thermometer dropped from sixty to thirty degrees. Such sudden changes must of necessity have damaged the trees. Lack of nutrition first appeared in the buds, which suffer most. This laid the foundation for the present heavy drop of fruit.

"Other evidence that the damage is due to winter injuries is shown by the abnormal condition of the pollen. Also the injury is most severe in regions that have been affected unfavorably by drought during the last one or two years. It is also bad on shallow soils and in orchards suffering from lack of cultivation. These conditions are always apparent in the East, where winter injury is frequent. Although the fruit crop may be exceedingly light, yet it has been shown in the past that trees that shed their fruit abnormally may recover and in time become good trees. Hence the department urges the importance of simply giving good care and treatment to the trees and soil and allowing nature time to work her own recovery."

Mr. R. G. Phillips, secretary of the International Apple Shippers' Association, states that many apples being barreled which should be sent to the evaporator, cannery or cider mill, is a big factor in oversupplying the markets. He is correct. It may be said in addition to the above remark that this class of apples when shipped usually does not pay the freight and are handled at a loss, when a reasonable amount could be realized if they were sent to the evaporator or vinegar factory. Mr. Phillips also states that the off-grade fruit displayed in the grocery stores and fruit stands repel rather than invite consumption. It is not only possible to produce too many apples but it is very easily possible to kill the best apple markets in the world by trying to force inferior grades and varieties on the public.



"Wenatchee" Fruit and Vegetable Picking Bags

(Patented April 27, 1915)

This bag is emptied by releasing a snap. The bag will hold about a bushel. When snapped at the frame it will hold about a half bushel. The frame is made of steel, the canvas is 10-oz. and every point is reinforced with leather where from experience it has been found necessary. **Price \$1.75 post paid** to all parts of the United States where we have no agents.

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Corvallis, May 29, 1916.

Editor Better Fruit:

In the April number of "Better Fruit" on page 14 there was published a short extract in which Professor H. A. Surface of the Pennsylvania Department of Agriculture advised a Pennsylvania fruit grower to spray with bordeaux and arsenate of lead for Baldwin spot.

Knowing that many growers in the Northwest often apply the name "Baldwin spot" to the common disease usually known as bitter pit, the writer undertook to find out from the plant pathologist of the State of Pennsylvania what sort of disease was referred to in the article mentioned. In reply, information was received showing that the spotting of apples in Pennsylvania for which spraying is effective is not the bitter pit or "Baldwin spot" of the Northwest, but is the Cylindrosporium spot, not known to occur in the West.

The bitter pit or "Baldwin spot" of the Northwest is a disease of physiological origin and cannot be controlled by spraying. This disease and related troubles are admirably discussed in the February, 1916, (page 13) number of "Better Fruit" by Dr. Charles Brooks, and the reader is referred to this article for reliable information on the subject.

Very sincerely yours,
H. P. BARSS.

Charges Often Made Against Auctions

"The auction is a dumping ground"—but why are the choicest cherries, oranges, lemons, grape-fruit, pears, plums and pineapples sold at auction.

"Combinations are likely to exist among the buyers"—but why do the

California Fruit Growers' Exchange, The California Fruit Distributors, The Florida Citrus Exchange, and The Mutual Orange Distributors, use exclusively the auction in twelve or more of the largest population centers of the United States, and why do their agents put the lie to the above statement so often made to growers by interested parties.

"The auctions are sporadic and uncertain"—but why do prices on like quality and condition of fruit not vary over ten or fifteen cents at any sale.

"Auction selling is not good merchandising"—but why did the United Fruit Company discard the private salesman and adopt the auction in New York, Philadelphia and Baltimore.

"The auctions cause gluts"—but why are they used to relieve gluts in the selling of apples whenever the private sales system is clogged.

"The auction selling of apples is new and untried"—but have not the apples been selling at auction in London, Liverpool, Glasgow and Hamburg for years; and did not the Boston auction handle satisfactorily nearly one-half of the cars of box apples sent to that market.

The Truth.

"The fruit auction system is the logical, economical and efficient way of distribution of standardized fruits in large population centers"—so says the Department of Foods and Markets of the State of New York.—No. 5.—Adv.

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Fruit Industry Paraphrased

The New York commissioners will enforce the new federal barrel law during 1916 very vigorously. A law is created because it is believed to be good. This is not always true, but there is no question but what the apple-barrel law is a splendid law for the fruitgrower. If it is enforced in the State of New York and other states it will undoubtedly prevent a lot of cull apples from going on the market, on which the grower usually loses money; and more important than this, these cull apples, which have been marketed for many years in the past, spoil the market by filling it up with unattractive and uninviting fruit, repelling the buyer and unnecessarily overcrowding the market with unsalable stuff. We say to the New York commissioners: "Enforce your laws, and when you do it you will be helping the fruit industry."

Mr. Horace W. Day, of Sgobel & Day, after making a tour of California and the Northwest, reports in an interview given out by the press, published in various newspapers, that the California Bartlett pear crop will not exceed 60 per cent of last year, and that the Medford pear crop suffered severely from frost also. From information obtained, Mr. Day says he understands that Hood River did not suffer from the frost. Mr. Day gives the very interesting statement that deciduous fruits, including pears, will bring much more

money this season than for some years past. Mr. Day, when interviewed in May, stated that the condition of the apple crop was problematical, for the reason that at time he was unable to determine definitely the amount of damage done to the crops in the Northwest. He believes, however, that prices will depend upon two factors largely,—the amount of tonnage and the methods of marketing.

The Columbia Highway between the City of Portland and The Dalles is now open. The roads from The Dalles going east are in good condition for country roads, so that Easterners who want to visit the great Northwest will find it pretty satisfactory going all the way across the continent. The road from Portland to California is also in number one condition. Tourists who have traveled all over the world say there is no roadway anywhere in the world that has scenery anywhere approaching either in grandeur or magnificence that along the Columbia River between the City of Portland and Hood River.

The new fruit standardizing law for the State of California will be operative and effective for the year 1916. This law has been printed in several languages, so that all foreigners engaged in the fruit business in California will be able to read it. It is the intention to carry on a very vigorous enforcement of the law.

Supplies for the fruitgrowers will come high this year. Boxes cost more. Paper costs more. Spray costs more. In fact about everything that goes into the production of a box of apples both in growing and harvesting costs the fruitgrower more money this year. The trade will please take the hint. We need the money. We must live. Everything we have to buy, to eat or wear costs more, therefore the fruitgrower should get more money for his fruit this year, and with the business prosperity existing at the present time, and the severe loss occurring in many fruit sections, reducing the quantity, there is every reason why the fruitgrower should be able to secure better prices. Co-operation at this end of the line is all right. The associations are doing good work, but the fruitgrower wants a little co-operation from the fruit dealer, and more particularly from the fruit retailer.

* * *

On account of weather conditions and frost the fruit crop of Sacramento Valley has been materially reduced. Among the varieties of fruits suffering severely are apricots, peaches, pears, prunes and grapes. While it is difficult to determine definitely the loss from various sources it may be stated that the loss will be somewhere near 50 per cent.

* * *

California reports a very heavy damage from frost and loss on grapes, amounting to \$500,000. In the Sacramento Valley the loss is estimated at 80 per cent; Marysville, 30 to 60 per cent; Florin district, 30 per cent; Lodi, 30 per cent; in Yolo, very little. Marysville section suffered from severe frost, damaging the tomato and potato crops very extensively, the damage covering Yuba, Sutter and Butte Counties.



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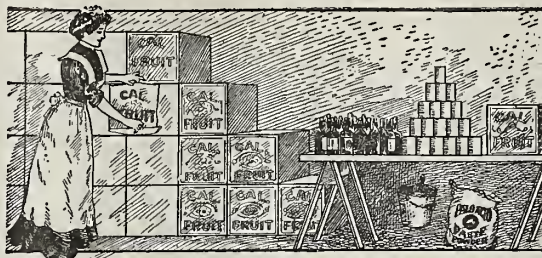
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Enforcement of Our Horticultural Laws

J. W. Pomeroy, Scappoose, Oregon, before State Horticultural Society Meeting at Corvallis

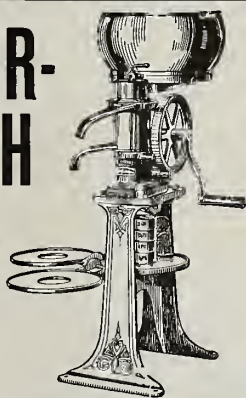
I FEEL especially honored in being invited to speak to your honorable body this morning. I do not wish what I may say to be construed as coming officially from the Board of Horticulture. This would be erroneous. I simply wish to call your attention to some of the work that comes under my jurisdiction, and to conditions as I as an individual see them. One of the great considerations that comes home to every grower of plants or plant products is the necessity of protection against pests and diseases that infest them. In spite of the many different means that may be adopted for the eradication of these pests and diseases and of the many sources of information at our disposal, we find a large portion of people igno-

rant of their use and in some cases of their existence, and another portion unwilling to apply that means unless compelled to by law. I want to pause here to remind you that it is necessary that we eradicate these pests and diseases. They must be kept in control if we are to successfully grow plants or plant products. To this end rules and laws adopted from time to time to meet the problem as it has made its appearance, and part of the work of the State Board of Horticulture is to enforce these laws and regulations. Upon my resuming the duties of Commissioner of the State Board of Horticulture, I was firm in the conviction that every orchard in my district would be sprayed at the proper time and that every tree not bringing forth good fruit would be immediately hewn down, and that bug or fungi that played havoc with fruit branch would post haste meet its death or leave for another climate. I was not long in learning, however, that these were the deductions of a fool, and I began to wonder why my dreams of a millenium in that line did not materialize.

I talked with and urged inspectors to action in various counties of my district and became very impatient with some of them because the law had not been enforced in some instances as readily as I had anticipated. It soon became evident to my mind that there were certain localities and districts where law enforcement was an easy task, while in other sections it was next to impossible to get results. It is true we probably would get the conditions remedied partially or in a half-hearted way for one season. This left us the same old routine to go through the next season. As I grappled with this problem, I became more convinced of the truth of what Dean Cordley told me some years ago. He said: "You cannot successfully bring about a reform by force. It must come through a patient and tactful education." I believe this

holds true in any line of action. I can remember when it was impossible to enforce the law against boot-legging in my own home town because the majority of people in that place were not conscious of any wrong in the act. Now, however, as a result of a campaign of education, public sentiment has changed to such a degree that a law-breaker would get six months in jail so quick it would make his head swim. I have, therefore, been brought to this conclusion; that a great part of the problem of horticulture law enforcing lies, not so much with the officials acting as policemen as it does with the growers themselves. I believe the inspector must be more of an advisor and

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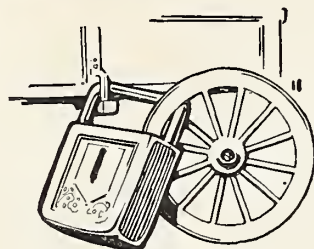
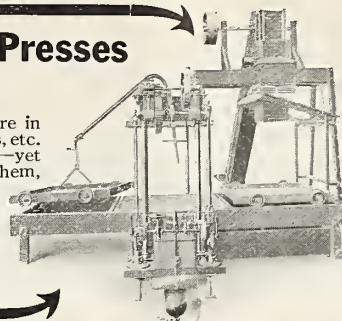
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less a policeman, and must foster and solicit the cooperation of the grower. I find that wherever the sentiment of the majority of growers favors law enforcement we get results that are lasting with no great effort, and these situations prevail only where people can be brought together in some form of organization or meeting, and can be induced to see the actual conditions and its consequence together. In other localities where this cannot be accom-

plished the commissioners have made no particular effort to enforce the law, believing that they are avoiding a course that would entail large expense upon the taxpayers and bring no satisfactory results from the standpoint of the grower.

There has been considerable criticism leveled at the inspectors because of their tendency to be lenient until the desired education could be accomplished that would result in community

effort. It has also been said that our horticultural laws were not sufficient to cope with the problem. But let me pause here to say that our present code of horticultural laws are the result of long and patient constructive effort on the part of our best growers and experts in that line, and I am firm in my belief, with what experience I have had that they are the best code of horticultural laws yet enacted by any state in the union. We have power to intercept or eradicate any disease or pest, and to carry on any rational program for the protection of our great fruit industry, each county having the authority in proportion to its needs for that purpose, and whether or not these laws are enforced depends to very large degree upon the grower himself. In fact, very few serious problems face us that are not directly the result of the lethargy and lack of interest of those growers themselves, who desire protection. For instance, I have a county in mind in my district where the county officials are opposed to allowing any funds whatever for inspection or advice along that line. These officials are not fruit growers and know nothing of the problems of the fruit grower, and they deny the growers the right to claim any part of the county funds for that purpose. Partly for political reasons, and partly because the inspectors did not begin cutting down people's orchards sum-



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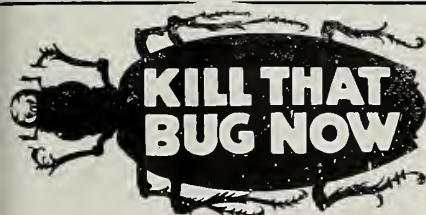
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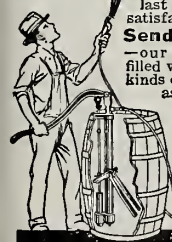


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marily, they were advised that the inspector was not doing his duty. I know that the problems of this county are not the lack of police force, but the lack of practical and expert advice and education. Now, whose fault is this, but that of the growers themselves? All other interests in the county see that their county officials provide for their needs, but the fruit grower has been content to sit and blame the law. In spite of the fact that this is one of the largest fruit-growing counties in my district. What the county needs is a practical and scientific advisor first, and a quarantine officer last. But above all, we want the healthy, wide-awake interest and cooperation of the growers themselves. I wish to say aside here that there has been considerable effort on the part of other states and some in this state to originate and establish uniform horticultural laws. It is difficult, however, for me to see how this visionary solution can be realized with this state as a factor. Oregon occupies a peculiar position in this matter. Portland being one of the principal ports of entry, much traffic does and will enter here from all parts of the world, whose ultimate destination will be many parts of the United States. When we consider the source of these shipments entering here, it must be clear to us all that Oregon can never repeal or change her present quarantine law with regard to her practice of inspecting horticultural imports at point of delivery. In fact, any tampering with this law would undo the work of years. There are probably small changes that could be made each year in our horticultural laws that would simplify and aid conditions, as has been resorted to in the past. But we must keep in mind always the protection of our great and growing plant industry. The impression, however, that I wish to leave with you as I conclude is that we must in our rational enforcement of our horticultural laws have your loyal support and cooperation.

Some New Facts Concerning Fire Blight

Continued from last issue

For a brief statement concerning these leaf lesions and proof that they are caused by *Bacillus amylovorus* I shall quote from my publication, to which I have already referred: "In the majority of cases the leaf infections start at the margin and are either lateral or terminal, although central lesions have been found in some cases on apple leaves. The lesions on the apple leaves are a light brown or yellowish brown and frequently show a faint purplish border at the advancing edge. In active lesions the advancing edge shows a narrow watery zone. Those on pear leaves are darker in color and exhibit a mottling of various shades of dirty brown. There is a noticeable tendency for the bacteria to advance more rapidly down the midrib or certain lateral veins, so that many young lesions are more or less triangu-

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82x3 1/2 in.	12.75	3.20	38x4 1/2 in.	22.50	5.75			
83x4 in.	15.75	4.20	37x4 1/2 in.	23.60	6.20			
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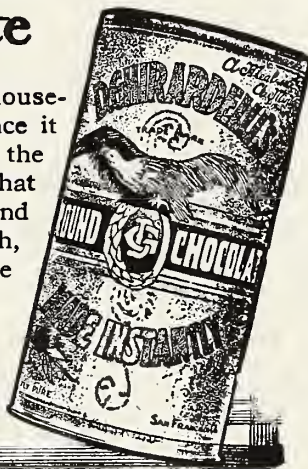
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lar in outline. In some cases the migration of the bacteria can be noticed along certain veins in advance of the general border of the dead area. All stages of leaf invasions have been found from slight marginal infections to lesions which have advanced throughout the entire leaf blade and down the petiole. These leaf infections were not rare, but it was possible to find dozens of them on a single five-year-old tree. The writer is of the opinion that the bacteria enter the intercellular spaces through the water-pores and also by the stomata to some extent, and later penetrate the vessels in the way suggested by Bachmann. It remains for further investigation to definitely substantiate this view. It is

an easy matter to verify the presence of the bacteria by microscopic examination. Dissections made from the advancing edge of a lesion give the organism in large number, and if the tissue selected includes one of the larger veins they can be seen to ooze out from the broken ends of the vessels. A sufficient number of lesions have been examined to leave no doubt as to the constant presence of the bacteria. The lesions have also been tested by cultures for the presence of living bacteria. Mr. H. W. Samson, Horticultural Inspector at Spokane, assisted in collecting material and also sent fresh specimens to our laboratory for use. It was at his solicitation that the writer first visited Spokane to make field

observations. In many of the isolations tried the bacteria were found to be dead, but pure cultures were obtained from others by the poured-plate method. Since the study of these leaf lesions was not begun until July, this condition is what one would expect, as at this time of the year the bacteria are dead in a good per cent of the twig infections. In some cases where microscopic examination showed an abundance of bacteria, the cultures showed that only a relatively small per cent were alive. It seems probable that a certain per cent of the leaf lesions will behave like the twig lesions, and the bacteria become active in them after the return of more favorable conditions. The pure cultures isolated from the leaf lesions have been used for making inoculations into seedling apple trees. The trees to be inoculated were placed in the inoculation chamber and kept well watered for 48 hours previous to introducing the bacteria into the tips just back of the terminal bud. The inoculations were made July 31st, and by August 8th the seedling exhibited fire blight in severe and typical form. The microscopic examinations

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and the results from inoculations leave no doubt that the leaf lesions described above were due to *Bacillus amylovorus*."

The important new fact is the definite establishment of the occurrence of leaf lesions, so we must now add this as one of the known ways in which fire blight manifests itself. This will not bring a message of cheer to those who are engaged in the fight with this disease. Even with the most careful removal of cankers and twig blight infected leaves may be left behind. The removal of all of these infected leaves would be out of the question. Possibly many cases of reappearance of blight after careful cutting may be due to the bacteria which have persisted in these infected leaves. Two very important questions concerning these leaf infections remain for further investigation. Do leaf infections take place through the stomata and water-pores or are insect punctures or other wounds necessary? While the evidence is in favor of an independent entrance of the organisms through the epidermis, the proof is still lacking. To what extent do the bacteria advance down the leaf petiole and into the twig, thus causing twig blight? That they do this to some extent seems certain, but the frequency of this behavior is of importance. It is hoped that the work of another season will give new light on these points and I trust we may have the benefit of observations made by fruitgrowers in various portions of the state.

Where the Names Come From

Cherries were introduced into Europe 70 B. C., by Lucullus from Kerasunt in the Black Sea.

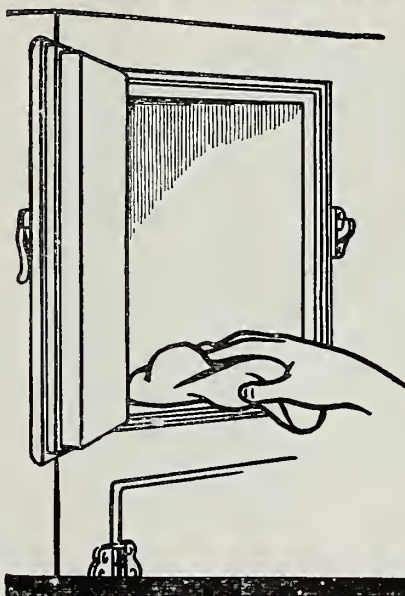
Damson Plums originated at and were named after Damascus.

Gooseberries are called in Germany Johannis-beeren or Johns berries, because they ripen about the feast of St. John. St. John is called in Holland St. Jan, and the fruit there is called Jans-beeren, which long ago was corrupted into Gansbeeren, the literal translation into English being gooseberry, as Gans in German signified goose.

Greengage Plums originated near a monastery in France near Fontainbleu. Scions were taken by the Rev. John Gage to his brother, Sir Thomas Gage, who had them grafted on trees in the

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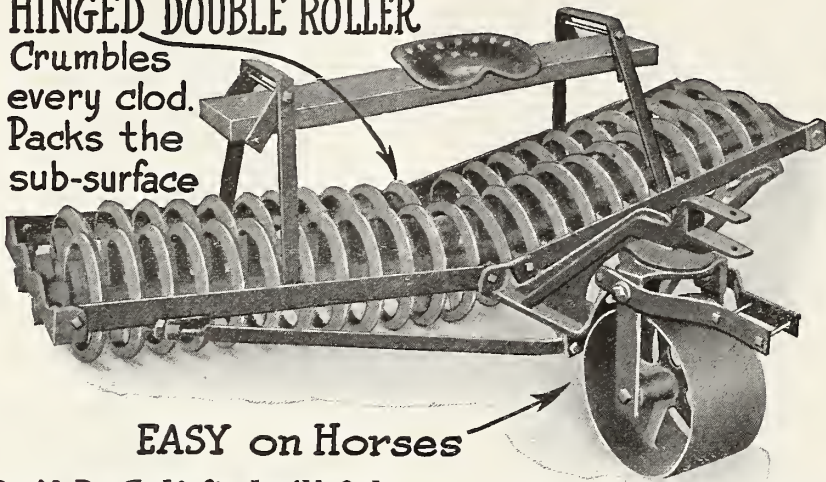
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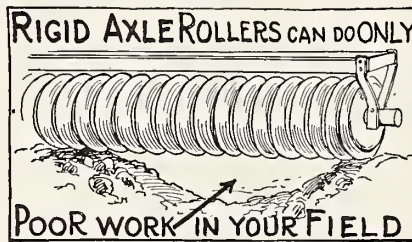
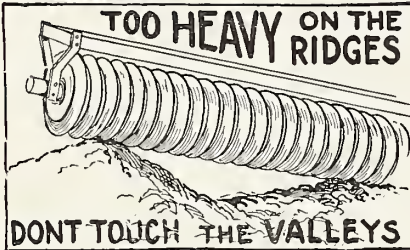
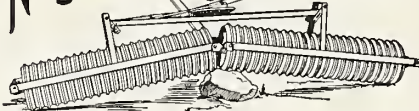


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garden at Hengrave in England, from whence they spread rapidly over Europe.

The Walnut is a corruption of Gaul-nut, the nut of Gaul or France, as Gal-lea and Wallia both anciently signified Gaul. The transition from Gaul-nut to walnut was easy.

Marmalade originally meant a jam made from the quince, and originated in Portugal, the name being derived from the Portuguese word marmelo or quince, the jam being called marmalade. The word is now used for jams made from oranges, apricots, plums and other fruits.

Muscat Grapes are not as generally supposed names from the musky flavor of this variety but on account of the grapes attracting flies (muscal).

Oranges—The sweet orange was first brought from China to Europe by the Portuguese in 1549. The original tree was said to be alive a few years ago in Lisbon.

Orchard is from the Anglo-Saxon word ortgeard or wortgeard, a yard or garden, where worts or vegetables were grown.

Pippin—The name pippin applied to an apple originally signifying that the variety was raised from the seed or pip. The prefix usually refers to the location where originated or the name of the originator.

Raspberry is a contraction of Raspiberry. An old name for the raspberry was Hindberry—German Gimbeere. The bilberry was called Hartberry, Anglo-Saxon Heortbeorg, from the stag or hart, and the raspberry was called hindberry from the female of the same species.

The Strawberry was probably originally Strayberry, and was named from the runners which stray from the parent plant, establishing themselves independently.

Vinegar is from the French Vin-aigre or sour wine.

Advertise—The original meaning of the word was admonish, used by Ben Jonson in this sense: "Let me advertise you," meaning "let me admonish you." The accent was on the second syllable. The first advertisement ever published appeared in a newspaper entitled "Perfect Occurrences of every daic iournal in Parliament and other Moderate Intelligence No. 13," from Fryday March the 26th to Fryday April 2nd, 1647. The advertisement related to a book called "The Divine Light of the Church," London.

Apples were first cultivated in America in 1629, having been imported from England by the Governor of Massachusetts. Governors Island, Boston Harbor, was given to Governor Winthrop in 1632, on condition that he should plant an orchard on it.

Apricot—Formerly apricock, is from the Latin praecoqua, the name given on account of the fruit ripening before peaches. The apricot is a native of Armenia, being introduced in Europe in the time of Alexander the Great. It was first grown in England about the middle of the sixteenth century.

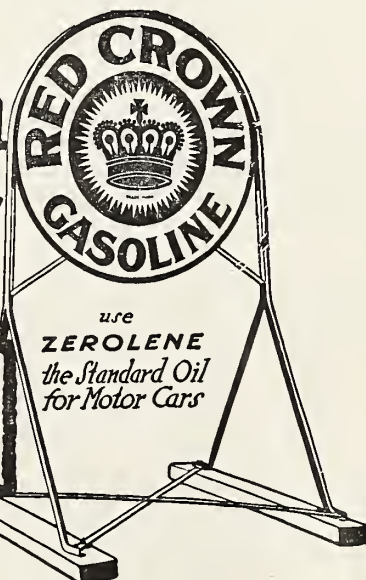
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For More Power, Insist
on the Straight Distilled,
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**NOT A
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Standard Oil Company
(California)





Tom—You're not turning as fast as Dad does, Mary.

Mary—No Tom, but we'll get all the cream anyway with this lovely new machine. Dad says

“It Skims Clean at Any Speed”

That's what this marvelous new invention actually does.

A fixed-feed separator may skim clean if in perfect order and turned at just the *right speed*. But every member of the family turns the crank at a *different rate*; no one can maintain an even speed *all the time*—it isn't human nature. Every old type separator has an *unchanging inflow* of milk. That's why it loses cream when not turned at exactly the right speed.

THE NEW SHARPLES SUCTION-FEED

Separator gets all the cream because it automatically regulates the inflow exactly in proportion to the separating force—always just right for perfect skimming.

The Suction-feed Separator delivers smooth cream of *even thickness* that churns out more butter of choicest quality. If you sell cream you can *guarantee uniform density*.

You can increase the capacity of the Suction-feed by simply turning faster, and get through quicker if in a hurry. The new Sharples is the only Separator that can be hastened. You can easily pour milk from a forty-quart can into the low supply can. It's the largest found on any separator—and it's only knee-high.

The women folks prefer the Sharples because the simple tubular bowl is so easily cleaned. Has only three pieces—no discs to wash or get mixed up. The tubular shape gives double skimming force.

The new Sharples is ruggedly built for hard service. It is neat, compact, runs easily and oils itself.

This wonderful machine will earn you a new dairy profit—without added expense. Our new free book, “*Velvet*” for *Dairymen*, fully describes the Suction-feed. Your copy is ready. Send for it today. Address Dept. 99.

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26 Extra Features

Unique to the Mitchell—Paid for by Factory Savings

This is to tell you how factory efficiency has cut 10,000 costs on the Mitchell car.

How we build it for half what it would have cost, even in 1910.

How we build it for 20 per cent less than other factories can build it now.

And how, by these savings, we give you 26 extras which you don't find in other cars.

John W. Bate The Efficiency Expert

In 1903—when Mitchell cars were first built—we brought John W. Bate to Racine. He was even then the greatest expert in factory efficiency in the metal working line.

Our vehicle factory was then 70 years old. It was a model efficiency plant. And we started then to make our motor car plant the most efficient of its kind in America.

10,000 Costs Reduced

In the 13 years since, Mr. Bate has reduced more than 10,000 motor car costs.

He built this whole plant—covering 45 acres—so cars could come through without the loss of a second. He equipped it with 2092 labor-saving machines—the most efficient machines that are known in this industry.

He has eliminated from the Mitchell almost every casting. In place of them he uses 184 drop forgings, which are three times as strong. Also 256 steel stampings, tough and stanch.

He has invested \$5,000,000 so fine cars could be built here for less than anywhere else. No other factory which builds cars of this class can compare with it.

Not One Cent Wasted

Some motor car makers buy all their parts. Most makers buy the larger share. But 98 per cent of this Mitchell car is built in this model plant. Thus we save under others from 20 to 40 per cent.

Part of this saving is shown in our price. No other high-grade Six of the Mitchell size sells at the Mitchell price.

The rest of the saving pays for 26 extras. We give you 26 features which others don't offer. No car in our class has more than two of them. No car at any price has more than four.

Go see these extra features. You will want every one of them. And you will not, we think, buy a car which omits them.

257 Cars in One

This New Mitchell model came out April 15—from four to eight months later than other current models.

This model was completed after the New York Show. There our experts and designers examined 257 new models. And they picked out the best of the new styles in all of them—from ours and from others—in body design and equipment.

Thus the New Mitchell combines all the best things brought out at the New York Show. Its lines and its luxuries—its new ideas in equipment—are the finest shown. All this in addition to the 26 unique features which other cars don't offer.

Where Mitchell is First

In ease of riding the Mitchell car stands first. Any Mitchell dealer can prove that in five minutes. No other car in the world contains the Bate cantilever springs.

The Mitchell rides the roughest roads as a boat rides waves. This comfort will astound you.

The Mitchell stands first as regards durability. Six Mitchell cars have averaged 164,372 miles each. In ordinary driving that is more than 30 years' service.

The Mitchell is the easiest car to drive. That's because of its oversize steering parts, fitted with ball bearings.

The Mitchell is long and roomy—127-inch wheelbase. It is powerful. In every way it gives greater value than other Sixes, because of our factory economies. And it includes 26 features—all costly and important—which other cars don't offer.

Let the nearest Mitchell dealer show these extras to you. He has this new model now. If you don't know him, ask us for his name.

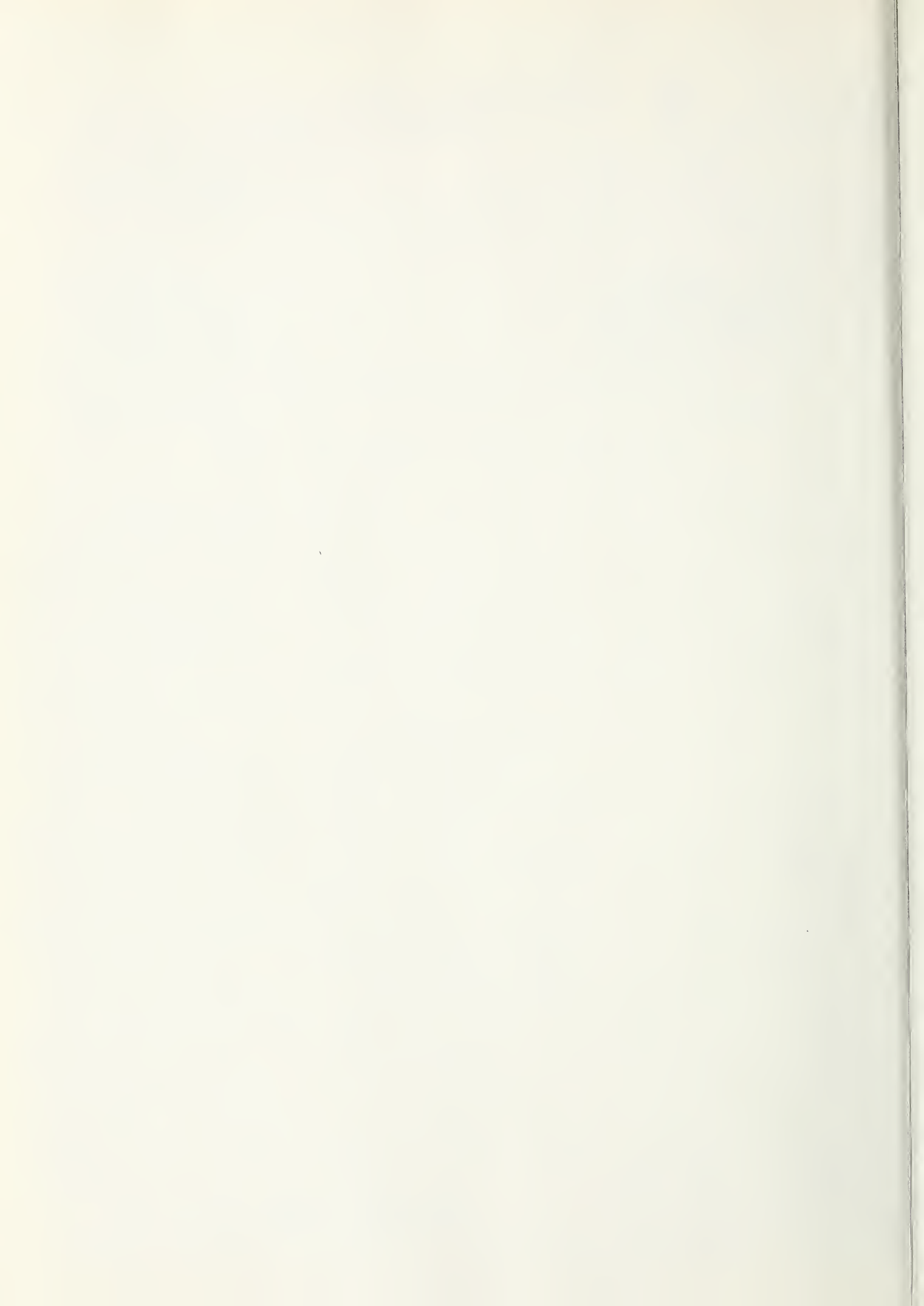
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Six-cylinder, high-power, high-speed motor—127-inch wheelbase. Anti-skid tires on rear. Complete modern equipment, including motor-driven tire pump.

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